

AMENDMENTS TO THE ABSTRACT

Please replace the Abstract with the following new Abstract:

~~The present invention provides a novel~~ A method of contoured-anatomy dose repositioning (CADR) as a means to automatically reposition a patient to better recover the planned dose distribution without reoptimize reoptimizing the treatment plan. Specifically, CADR utilizes planning CT images, the planned dose distribution, and on-line images for repositioning dose distribution on a given day. Contours are also placed upon the images using manual, automatic, template-based, or other techniques. CADR then optimizes the rigid-body repositioning of the patient so that the daily dose distribution closely matches the planned dose distribution. ~~The present invention also provides a method of multiple-margin optimization with daily selection (MMODS) to improve radiation delivery without reoptimization. During the initial optimization procedure, plans are optimized for several margins of various contours (e.g., tight, medium, loose, etc.), or with different objectives (e.g., aggressive treatment, sensitive structure sparing, etc.). Similarly, if multiple patient image sets are available, plans can be optimized for the different anatomical layouts, either using current information, or accumulated information regarding the superposition of organ locations in the combination of images. A user can then choose in real time from a variety of optimized plans, generally with different margins, during the treatment process, and thereby compensate for a recognized change in size or position of the tumor or neighboring tissue.~~